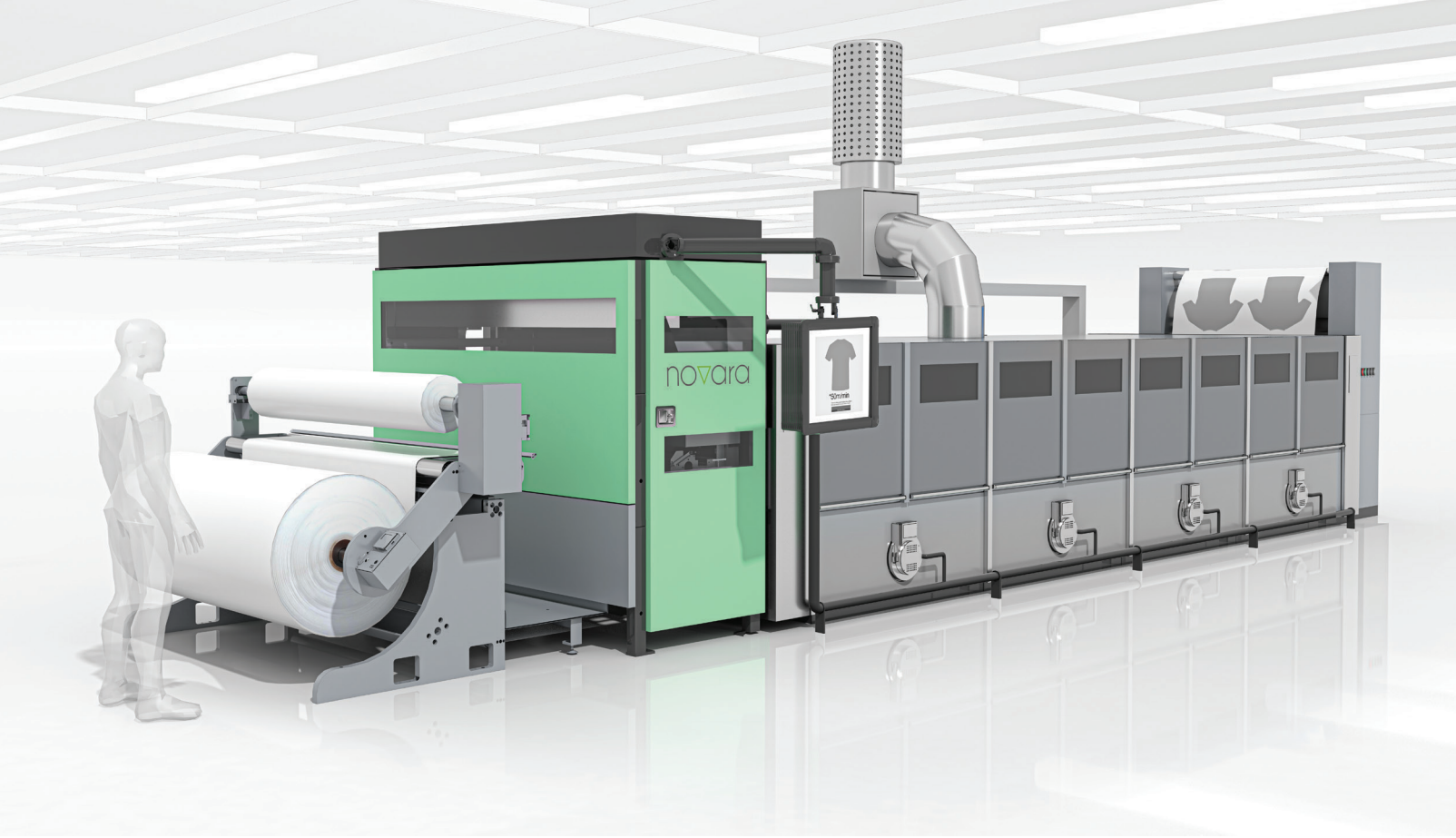


novara

Digital Textile Finishing

Novara™ digital textile finishing technology delivers sustainability with precision digital application of functional finishes to textiles. Novara™ enables low energy, sustainable fabric finishing with significant cost reductions.

Key benefits

- COST REDUCTION
- CHEMISTRY SAVINGS
- ENERGY REDUCTION

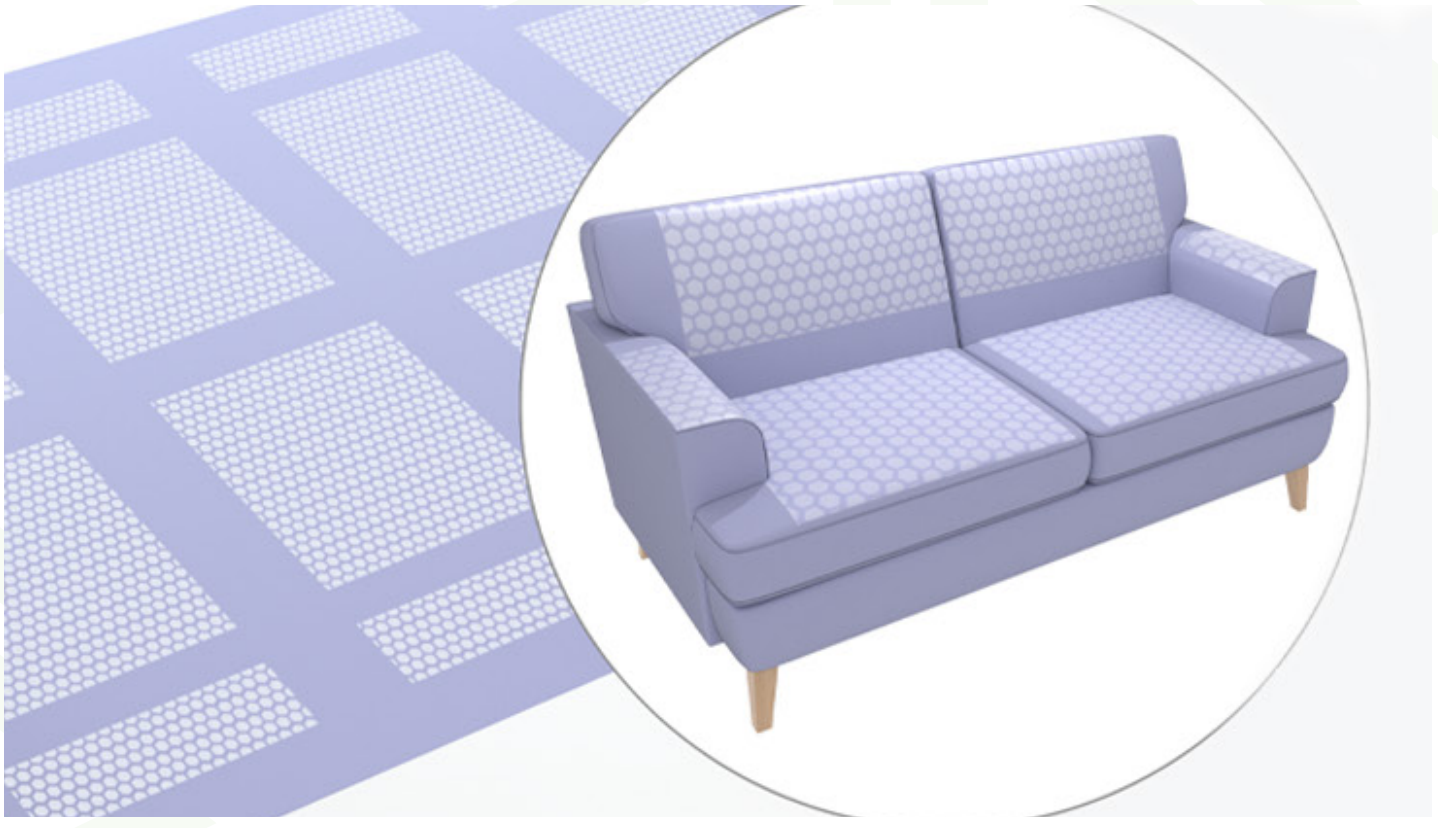
Novara™ is a non-contact technique, that utilises an array of digitally controlled nozzles to deliver precisely defined finishing to fabric. Delivering finishing only where it is needed, with precision 2D digital patterning and registered two-sided coating, Novara™ is a breakthrough manufacturing technology for the next generation of low-cost sustainable textile finishing applications.

Alchemie

Delivering value from digital technology:

The Novara™ precision digital finishing system delivers cost reductions of over 30% vs pad coating due to the significant reductions in energy and chemistry consumption. Cost saving in excess of 50% can be achieved in applications where the finish is only required on one side of the fabric.

When used in combination with a stenter the digitally targeted chemistry application, reduces energy, enables higher running speeds and increases valuable capacity. The Novara™ system can conveniently be implemented into existing production lines and capital investment payback is typically achieved in less than 12 months.



MULTIPLE PATTERNED FUNCTIONALITIES

UNIQUE VISUAL EFFECTS

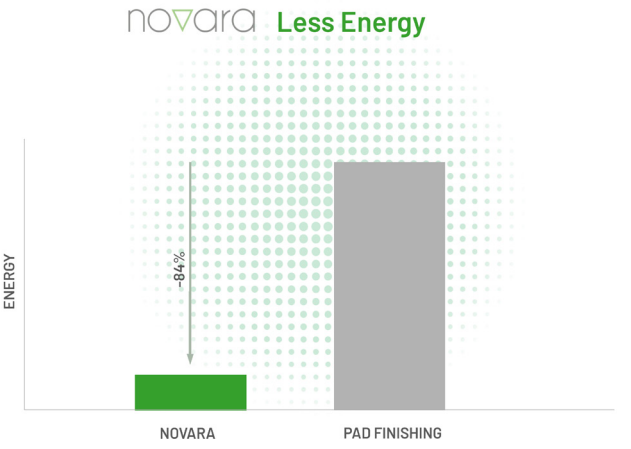
DELIVERY OF HIGH-VALUE FINISHES

Enabling sustainability:

The Novara™ digital finishing process can reduce energy consumption by over 85% vs traditional padding processes. By delivering finishing chemistry at higher concentrations, targeted to the areas needed, we have demonstrated that durable water repellent (DWR) finishes can be delivered to fabric substrates with 85% less energy and 25% less chemistry than pad coating.

Alchemie

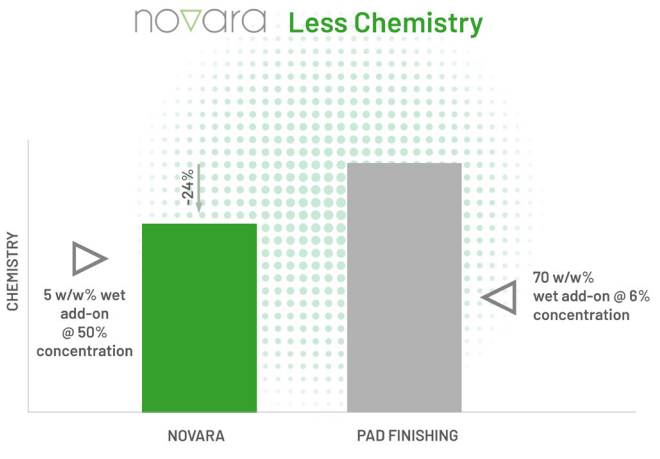
Unlike padding, which utilises a bath that is rapidly contaminated with fabric debris and varies in concentration, the non-contact Novara™ process delivers precisely defined finishes from the first to the last meter.



Example shown: Single-sided DWR finish applied to water-resistant jacket with 2D patterning compared to pad finishing.

Significant chemistry savings:

The Novara™ technology has been demonstrated to be suitable for the application of a range of commercially available durable water repellent (DWR), fire retardant (FR) and advanced functional finishes. The system is an open platform and any approved commercial chemistry can be used in the system.



Example shown: Single-sided DWR finish applied to water-resistant jacket with 2D patterning compared to pad finishing.

Unlike padding and rotary screen printing there are minimal losses in changeovers. Chemistry consumption can be significantly reduced compared to traditional methods, delivering savings > 25%.

Novara™ can deliver multi-functional incompatible chemistries by either 2D patterning on a single side or applying the finishes to separate sides. In addition targeting the finishing to digitally defined 2D patterns, the uncoated fabric can be more conveniently recycled.

We have demonstrated a wide range of finish functionalities:

WATERPROOF
STAIN RESISTANT
SELF-COOLING
FIRE-RETARDANT
METALLICS / VISUAL EFFECTS
ANTI-VIRAL
ANTI-BACTERIAL
ANTI-ODOUR
UV-PROTECTION

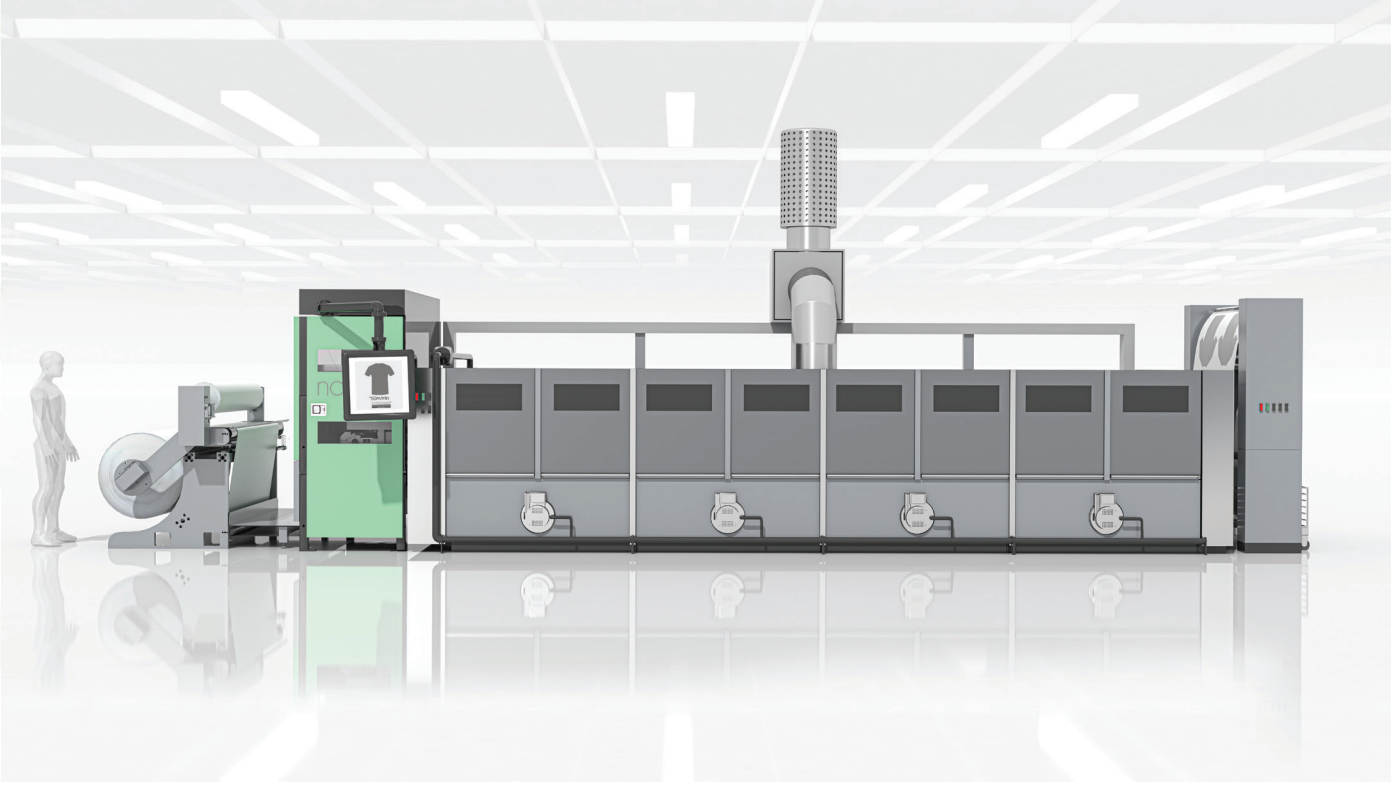
Alchemie

Technology comparison:

	Novara™	Pad coating	Rotary screen printing
Energy efficient	✓	✗	✗
Low chemistry consumption	✓	✗	✓
Digital coat weight consumption	✓	✗	✗
Non-contact	✓	✗	✗
2D patterning	✓	✗	✓
Sided	✓	✗	✓
Changeover time	<15 mins	>1 Hrs	>2Hrs
Digitally connected / industry 4.0	✓	✗	✗

Enabling the digital future of fabric finishing:

The Novara™ system is full connected and automated, enabling Industry 4.0 manufacturing platforms to be delivered. The system can be connected to MES/MRP systems, delivering unparalleled supply chain agility and flexibility.



Technical specifications:

Throughput	Up to 100m/min
Web width	1.8m and 3.6m
2D pattern resolution	~1mm
Side Application	Single or duplex application
Finishing chemistries	Up to 50 cPoise, water-based, up to 50C
Multi-functionality	2D and/or sided patterning of up to two functionalities
Substrate basis weight	50 - 1000gsm
Substrate	Polyester, Nylon, Cotton, Wool, Blends
Changeover time	< 15 mins automated
Dimensions	2 x 2.5 x 2.5 m
In-line drying	IR in-line (optional)
Connectivity	Ready for Industry 4.0
Power requirements	415V 3 phase 50/60 Hz electrical supply

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